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Misunderstood

By Vidya Viswanathan

There's a test I learned about in medical school called the MoCA, or Montreal Cognitive Assessment. The MoCA is a one-page 30-point test administered in approximately 10 minutes, widely used to screen for mild cognitive impairment. It includes memory recall of five nouns (both short-term and long-term (five minutes), a clock-drawing task, copying a cube, finding similarities between two objects, serial subtraction, naming of animals such as lion, camel, and rhino, and orientation to time and place, as just a few examples. In the end, you get a score out of 30; 27-30 is okay, 22-26 is mild cognitive impairment, below 22 means you likely have Alzheimer's. Even people outside of medicine now know the MoCA, because a past President publicly announced his perfect score.

When I think about MoCA, I remember one of the first times I saw a physician administer it to a new patient, during my clerkship year in medical school. The patient was an elderly Chinese man, in the clinic with his two young granddaughters—one in high school, the other in middle school. Their parents were at work in the store they owned, which they had started after moving here from Southern China. They had brought in their grandpa because, at his age of seventy, he was still working in the store, but they had noticed something was not quite right. He was forgetting how much money to give in change when he operated the cash register; he wasn't as talkative with them; he seemed more down and spaced out at times. The grandkids moved here when they were very young, so they spoke some Cantonese at home, but mainly spoke English. And they were very shy.

I was surprised to see that despite all this, the interview started without any in-person interpreter or phone interpreter. Maybe, I thought, an interpreter will come in for the actual neurological exam portion of the interview. But no interpreter was called. I thought it was odd,

but being a medical student in the room with a physician and the patient, I didn't feel comfortable questioning it. How could I assume to know more than the attending physician? He seemed to be comfortable using the grandchildren as translators, and maybe he had a plan to escalate from there if that was not adequate, I told myself. I knew it didn't feel right, but I stayed silent.

I listened keenly as the grandchildren translated his questions and their grandpa's answers. I had studied Mandarin Chinese for four years in college, lived in China every summer, and then lived for a year in Taiwan where the national language is Mandarin. The written script for Cantonese and Mandarin is the same; the sounds and words are very much not the same. But there is some overlap that I can grasp at, and having listened to a lot of Cantonese as well as Mandarin, I can sometimes tell when there's overlap, though never to the point where I would ever volunteer to translate.

The physician began with just general history-taking questions, and the granddaughters were translating the questions and then translating back the answers, and already the patient, the grandpa, seemed very withdrawn. He was making eye contact intermittently, but mostly looking at the floor, and had his hands folded in his lap. And then the MoCA was administered, and I could tell it was really hard for him, and for his grandkids. They were struggling, translating these words in the memory test like "velvet," and I was thinking, "Will these grandchildren be able to translate the word velvet? Will he be able to remember it?" He overall didn't do well. What saddened me most is, I don't think he grasped the meaning of this test. Maybe he didn't realize that this particular set of questions was going to have some bearing on how he would be classified or treated. In the end, he scored very poorly, a 20/30, which falls low enough for Alzheimer's Disease. And then it came time to administer the Geriatric Depression Scale (GDS), and still, no translator. The grandchildren translated all the questions in the GDS, to identify symptoms of depression specifically in the geriatric population. I remember one of these questions was, "do you sometimes feel like your life has

no meaning?" I heard the grandchildren translate it for him, and the way they translated it, in Cantonese, it sounded like, in Mandarin, the word they had used for "meaning" was "yisi." And in Mandarin, "yisi" does mean meaning but it either means "interesting" or means like information or factual meaning. It could also mean "enjoyment" or "purpose" but a better word for that context, to be clear, would be "yiyi." They actually looked confused when they were translating the question like they didn't think they were using the right word. And he answered no to the question, and to a lot of the questions, and so he scored close to zero, and it was typed into his EMR that he had Alzheimer's disease per his symptoms and MoCA but he was not depressed.

And then, things got wrapped up quickly, and they left with follow-up appointments and a prescription for a dementia medication, and they just accepted the diagnosis and the treatment—there wasn't much discussion. After they left, I tried to initiate a discussion about whether we could have found and used a Chinese language MoCA, but the physician was already busy thinking about the next patient. When I researched later, I found that in fact, the MoCA is available in 46 languages, and that linguistic and cultural translations are made to adapt it to other countries. However, though these versions have not all been validated, or calibrated to reflect the baseline education level of different populations. But I did find applications and websites that if you registered, would administer a MoCA in a foreign language. And, I found that in a 2012 article from USC published in the Int J Alzheimers Disease, authors developed a MoCA for Mandarin, Taiwanese, and Cantonese speaking individuals, attempting to maintain the neuropsychological intent of the original test while addressing the need for a linguistically and culturally appropriate cognitive screening test. These authors reviewed the official MoCAs translated into these languages and found that the written words in these Chinese versions were not identical and sometimes misinterpreted the intention of the original MoCA test item, with literal translations forming Chinese sentences that sounded unnatural and difficult to understand. One of their changes was to the 5-word learning test, changing "velvet" to "teacup" because it can be either a 2-character or 3-

character word depending on the dialect, and could be unfamiliar to older or lower-educated Chinese people. They changed "face" to "hair" because face is a single character in Chinese, and could mean physical face or social face, lending ambiguity to the original test. They changed the phonemic fluency task (generating words beginning with the letter F) to a semantic fluency task (generating names of 4-legged animals) because in Chinese each phoneme can have multiple meanings. This study and this version of the MoCA were exciting for me to discover. In the end, though, its use lies in whether we as clinicians do that internet search or phone our colleagues and seek it out. Its use lies in whether we have the patience and take the time to use it.

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